

**Alkaloids from Malaysian
Alstonia species**

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DISSERTATION SUBMITTED TO THE
UNIVERSITY OF MALAYA FOR THE PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR THE
DEGREE OF MASTER OF PHILOSOPHY

INSTITUTE OF ADVANCED STUDIES
UNIVERSITY OF MALAYA
KUALA LUMPUR

Perpustakaan Universiti Malaya

1996



A505607445

ACKNOWLEDGEMENTS

I would like to express my gratitude and appreciation to my supervisor , Prof. Madya Dr. Wong Wah Hun for his kind and patient guidance throughout the course of this study. I am also thankful for my co-supervisor Dr. Chuah Cheng Hock for his constant help and suggestions.

My thanks is also extended to all the staff at IPT especially En. Jasmi and En. Hanafiah and also the staff at Chemistry Department for all their assistance and cooperation. I would also like to convey my appreciation to fellow research students who have offered much advice and support, namely Renuka, Yoga, Viji, Ong and most of all thanks to Anand for his unstinting help.

Finally , I am most grateful to University of Malaya for their financial support.

ABSTRACT

The bark of two Malaysian *Alstonia*, the *Alstonia spatulata* Bl. and *Alstonia macrophylla* Wall. were investigated for their alkaloidal content. Extraction followed by repeated chromatography resulted in the isolation of thirteen alkaloids. The elucidation of structures were carried out by spectroscopic methods.

Two alkaloids were isolated from the bark of the *A. spatulata* Bl. and were identified as Leuconoxine and a methoxy epi-echitamidine type alkaloid respectively. From the bark of *A. macrophylla* Wall. eleven alkaloids were isolated and were identified as : Talcarpine, N_b -Methyl- N_b , 21-secotalpinine, Alstophylline, 19,20-Dehydro-10-methoxytalcarpine, N_b -Demethyl-alstophylline oxindole, N_b -Demethylalstophyllal oxindole, Alstonisine, Alstonal, Pleiocarpamine, Villalstonine and Macralstonine hydroxyketone.

N_b -Demethylalstophyllal oxindole and alstonal are new oxindole alkaloids and their structural elucidations are discussed in detail.

ABSTRAK

Kulit pokok dari dua tumbuhan Malaysia iaitu *Alstonia spatulata* Bl. dan *Alstonia macrophylla* Wall. telah dikumpul dan dikaji kandungan sebatian alkaloidnya. Sebanyak tiga belas sebatian alkaloid telah berjaya diasing dan ditentukan melalui kaedah pengekstrakan dan penulenan kimia. Struktur kimia tiga belas sebatian alkaloid ditentukan melalui kaedah spektroskopi.

Dua sebatian alkaloid berjaya diasingkan daripada kulit pokok *A. spatulata* Bl. dan dikenalpastikan sebagai leuconoxine dan alkaloid berangka jenis methoxy epi-echitamidine.

Sebelas sebatian alkaloid telah diasingkan daripada *A. macrophylla* Wall. dan dikenalpasti sebagai : Talcarpine, N_b -Methyl- N_b , 21-secotalpinine, Alstophylline, 19,20-Dehydro-10-methoxytalcarpine, N_b -Demethyl-alstophylline oxindole, N_b -Demethylalstophyllal oxindole, Alstonisine, Alstonal, Pleiocarpamine, Villalstonine dan bentuk hidroksiketon Macralstonine.

N_b -Demethylalstophyllal oxindole dan alstonal merupakan sebatian alkaloid oxindol yang baru. Perbincangan teliti mengenai penentuan struktur sebatian N_b -Demethylalstophyllal oxindole dan alstonal telah dibentangkan.

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LIST OF ABBREVIATIONS

brd	broad doublet
brs	broad singlet
brt	broad triplet
c	concentration (g/100ml)
CDCl ₃	deuterated chloroform
CH ₂ Cl ₂	dichloromethane
CHCl ₃	chloroform
COSY	Correlated Spectroscopy
d	doublet
DEPT	Distortionless Enhancement by Polarisation Transfer
EIMS	electron impact mass spectrum
EtOH	ethanol
g	gram
HMBC	Heteronuclear Multiple Bond Connectivity
HMQC	Heteronuclear Multiple Quantum Coherence
HRMS	high resolution mass spectrum
IR	infrared
KBr	potassium bromide
max	maximum
<i>m/z</i>	mass/charge
mg	milligram
MHz	megahertz
mp	melting point

NH ₃	ammonia
NH ₄ OH	ammonium hydroxide
nm	nanometer
NMR	Nuclear Magnetic Resonance
NOE	Nuclear Overhauser Effect
PE	petroleum ether
PE-Me ₂ CO	petroleum ether-acetone
q	quartet
qui	quintet
s	singlet
sat	saturated
TMS	trimethylsilane
UV	ultraviolet